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Device Types, Use

Printer names

64-0x

The x in the printer name is a placeholder for the numbers 4, 5, 6 or 8. The higher this number is, the wider label material can be used with this printer (roughly, the number equals the max. printwidth in inches).

Gen. 2 / Gen. 3

This documentation refers to 64-0x printers with two different generations of CPU boards:

- Gen. 2: CPU boards with article number A2292 (with Ethernet) or A2293 (without Ethernet). Those printers are *not* RoHS-compliant.
- Gen. 3: CPU board with article number A6621. Those printers are RoHS-compliant.

If a chapter refers to only one of both generations, the generation is added to the printer name („64-0x Gen. 2“ or „64-0x Gen. 3“).

64-0x Basic

- Monotone printing of labelling materials for thermal and thermotransfer processes
- Printing on different materials, e.g. cardboard or self-adhesive labels
- Processing roll and fan-folded material
- Print width:
  – 64-04 up to 106.6 mm
  – 64-05 up to 127.9 mm
  – 64-06 up to 159.9 mm
  – 64-08 up to 213.2 mm
- Resolution: 300 dpi
- Interfaces: RS 232, RS 422/485 (optional), USB, Centronics, Ethernet (optional)

➠ The 64-0x Basic may *not* be used with peripheral devices!

64-0x Peripheral

- Basic equipment as 64-0x Basic
- The 64-0x Peripheral is additionally equipped with a motor driver and a connector for peripheral devices. Thus it offers the possibility of driving a cutter or a rewinder.

64-0x Dispenser M

- Basic equipment as 64-0x Peripheral
- Additional features: Dispensing edge and internal backing paper rewinder
- Dispensing of self-adhesive labels after printing; the backing paper is wound up inside of the printer.
- „M“ stands for manual application of the labels, what means that the label is taken off the dispensing edge and is applied to the product by hand. For this reason, the dispensing edge provides a light barrier which triggers the dispensing of the next label, if the current one is taken off.

  ➠ Alternatively, the dispensing can be triggered by a foot switch. The switch must be connected to the *optional* single-start connector.

64-0x Dispenser A

- Basic equipment as 64-0x Peripheral
- Additional features: Dispensing edge and internal backing paper rewinder
- Dispensing of self-adhesive labels after printing; the backing paper is wound up inside of the printer.
- “A” stands for automatic label application, what means, that the label is applied by an applicator. The dispensing edge is longer than the type “M” edge and has no light barrier.

Options 64-0x Gen. 2

Internal Options

...should be factory-fitted or installed by a service engineer:

- *Reflex sensor*: Light barrier fork that apart from the transmission sensor, also contains a reflex sensor.
- *Fullsize sensor*: Punch sensor which can be shifted across the full material width.

  ➠ The fullsize sensor can not be used under one of the following conditions:

  – The printer is a 64-0x Dispenser (type A or M).
  – The printer is operated with the online verifier (see below) option.
- *USI* (Universal Signal Interface): can e.g. be used to control an applicator or a scanner.
- *Options board* with an additional serial interface (COM 2) and a PS/2 keyboard connector.
- *Antistatic kit*: reduces electrostatic charge, which can especially arise of the processing of plastic labels. Electrostatic discharge can damage or destroy electronic circuits of the printer.
- *Realtime clock*
- *Single-Start option*: Connector for a foot switch or another external signal, which is supposed to start or stop the printer.

External Options

…do not require any special alterations to the printer, however, the printer must be prepared for the use of peripheral devices:

- *Cutter*: Optional high-performance, low-noise cutter with double-cut function from 1 to 5 mm
- *Rewinder*: is mounted to the printer and rewinds the printed label materials with the printed side facing inwards or outwards
- *Online Verifier*: The online verifier (OLV) checks printed bar code immediately after printing it. If the bar code has not been printed or has not been printed in a readable way, the OLV stopps the printer.
- *Keyboard* for standalone operation
- *Foot switch* for triggering the label dispenser (printer must be equipped with single-start option)

Options 64-0x Gen. 3

Internal Options

...should be factory-fitted or installed by a service engineer:

- *Reflex sensor*: Light barrier fork that apart from the transmission sensor, also contains a reflex sensor.
- *Fullsize sensor*: Punch sensor which can be shifted across the full material width.

  ➠ The fullsize sensor can not be used under one of the following conditions:

  – The printer is a 64-0x Dispenser (type A or M).
  – The printer is operated with the online verifier (see below) option.
- *USI* (Universal Signal Interface): can e.g. be used to control an applicator or a scanner.
- 2nd *CompactFlash slot* on a daughter board
- *Antistatic kit*: reduces electrostatic charge, which can especially arise of the processing of plastic labels. Electrostatic discharge can damage or destroy electronic circuits of the printer.
- *Single-Start option*: Connector for a foot switch or another external signal, which is supposed to start or stop the printer.

- *External control panel*

[1] Right: External control panel.

An external control panel [1] can be connected in addition to the integrated control panel. An external control panel is useful if the standard control panel is difficult to access due to the position in which the unit is installed (min. firmware: 5.31).

Optional boards 🗋: Service manual, topic section „Electronic Gen. 3“.

External Options

…do not require any special alterations to the printer, however, the printer must be prepared for the use of peripheral devices:

- *Cutter*: Optional high-performance, low-noise cutter with double-cut function from 1 to 5 mm

  Manual „Cutter 2000“ 🗋 on the Documentation-CD

- *Rewinder*: is mounted to the printer and rewinds the printed label materials with the printed side facing inwards or outwards

  Manual „Rewinder 2000“ 🗋 on the Documentation-CD

- *Online Verifier*: The online verifier (OLV) checks printed bar code immediately after printing it. If the bar code has not been printed or has not been printed in a readable way, the OLV stopps the printer.

- *Keyboard* for standalone operation

  Standalone operation: User manual, topic section Advanced Applications 🗋, paragraph „Standalone Operation“

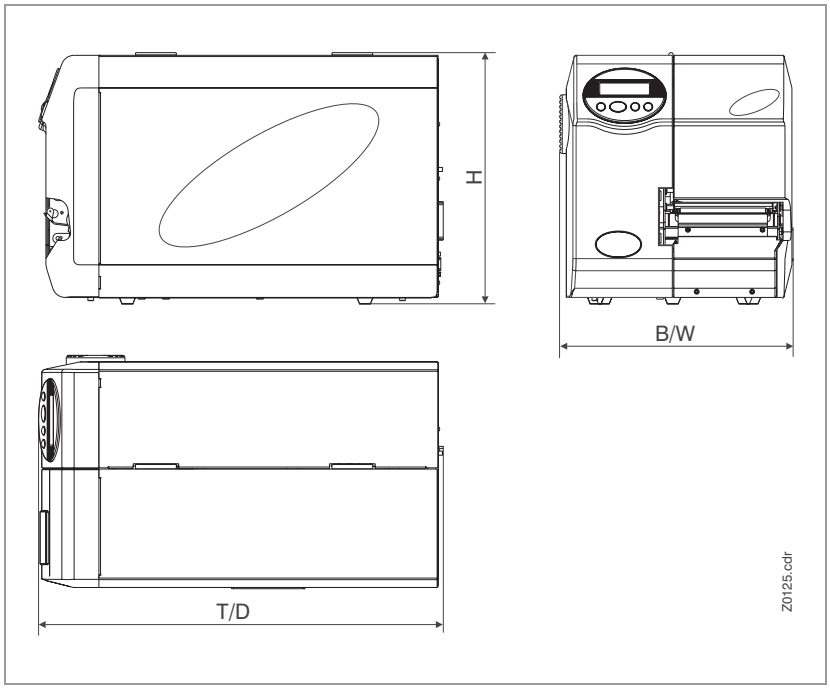
- *Foot switch* for triggering the label dispenser (printer must be equipped with single-start option)

- *USB-Stick*: All types of USB mass storage class devices connected to the USB host port are supported. Those are e. g. USB sticks (min. firmware: 5.31).

- *USB-Scanner*: USB scanner can be operated at one of the USB host ports. Scanned data is interpreted as keyboard input (min. firmware: 5.31).

Technical Specifications

Dimensions



[2] Dimensions of the 64-xx series standard printers. Refer to the following table for the values.

Printer	W(idth) / mm	H(eight) / mm	D(epth) / mm	Weight in kg
64-04/05	320	305	490	20.0
64-04/05 with cutter	320	305	540	21.5
64-04/05 Dispenser	320	305	490	23.5
64-06	350	305	490	21.5
64-06 with cutter	350	305	540	23.0
64-06 Dispenser	350	305	490	25.0
64-08	450	305	490	26.0
64-08 with cutter	450	305	540	27.5
64-08 Dispenser	450	305	490	29.5

[Tab. 1] Dimensions and weights of the 64-xx series printers. All width measures refer to the housing without the approx. 5 mm wide motor cover.

- The dispenser versions of the printers have equal dimensions as the standard types, respectively.
- Dimensioned drawings of the 64-xx with and without dispenser, cutter or rewinder are contained in DXF format (Autocad) on the Documentation-CD in folder *Dimensional Drawings*\.

Performance data

Print technology

Thermal direct printing, thermal transfer printing

Printhead

"Corner Edge Type" print head, high-definition, fast, with integrated temperature control

Resolution

12 dots/mm (300 dpi)

Print speed

Printer	Print speed in mm/s	Print speed in inch/s
64-04/05	50 to 406	2 to 16
64-06	50 to 359	2 to 14
64-08	50 to 229	2 to 9

[Tab. 2] Print speeds of the 64-xx printers (Unit interval 25,4 mm/s (1 “/s), respectively)

Print speed 64-0x Dispenser

Printer	Ribbon auto-econ.	Setting of parameter „Transport mode“ „Dispenser motor“	„Dual motors“	„Printer motor“
64-04/05 Dispenser	Off	12 "/s	12 "/s	16 "/s
	On	8 "/s	12 "/s	16 "/s
64-06 Dispenser	Off	12 "/s	12 "/s	14 "/s
	On	8 "/s	12 "/s	14 "/s
64-08 Dispenser	Off	10 "/s	10 "/s	9 "/s
	On	8 "/s	10 "/s	9 "/s

[Tab. 3] The maximum print speed of the dispenser printers depends on the setting of the parameter SYSTEM PARMETERS > Transport mode. The values are recommendations, up to which proper functioning of the printer is guaranteed.

Print width (actual)

- 64-04:106.6 mm
- 64-05:127.9 mm
- 64-06:159.9 mm
- 64-08:213.2 mm

Output mode

1:1 and 100 % printable, either with or without cut.

➠ Non-printable area:

- 1 mm from the front label edge (1st edge in feed direction) and
- 1 mm from the left band border (right border in feed direction).

Gap detection

- Self-initialising light transmission sensor, optional reflex sensor (at the bottom side of the material).
- Correction of gap displacement in feed direction is possible by modifying the gap offset (parameter PRINT PARAMETERS > Punch offset),

  ➠ The trigger point of the reflex mark (that is the actual label beginning) is at the dark-to-bright change of the reflex mark.

	Light transmission sensor	Reflex sensor
Setting range	2-17 mm	13-26 mm
Punch length (in feed direction)	0.8-14 mm	4 mm (recommended)
Punch width (across the web)	min. 4 mm	12 mm (recommended)

[Tab. 4] Punch dimensions and setting ranges.

Interpreter

Easy Plug, Line Printer, Hex Dump

Character sets

- 17 fonts including OCR-A and OCR-B,
- 3 scalable fonts,
- Truetype fonts supported

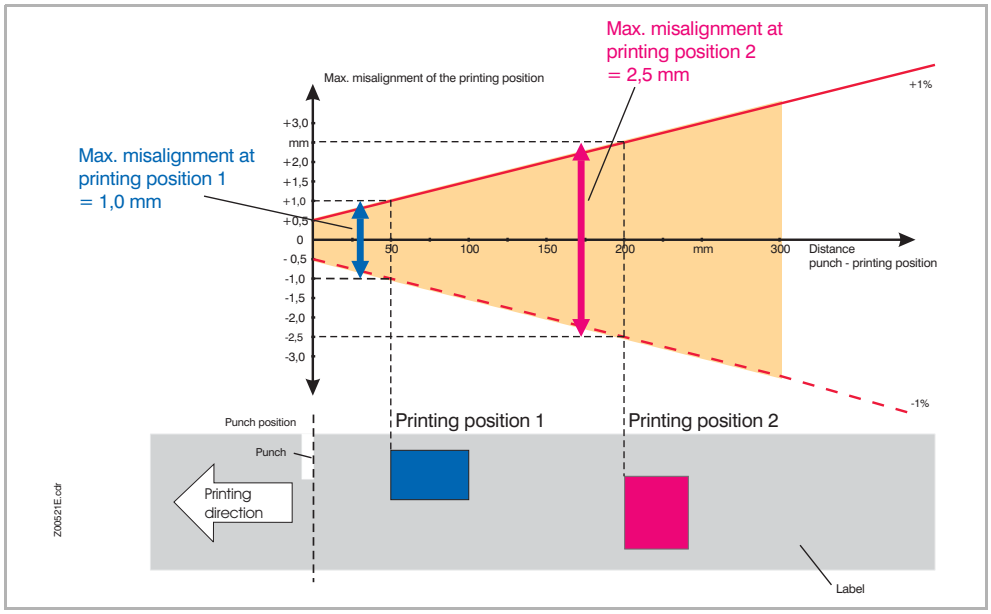
Character modification

- Scaling in X/Y direction up to factor 16,
- Rotation 0, 90, 180, 270 degrees

Impression accuracy

- In printing (y-) direction:

  The impression accuracy depends on the print position. With the printout starting directly at the punch position, the accuracy is ±0.5 mm. A distance between punch (that is label start) and print position will add ±1% of this distance to the accuracy fault (see fig. [3]).
- X-direction: ± 0.5 mm.



[3] Impression accuracy in printing direction, depending on the printing position.

Bar codes

Codabar	Code 128 A, B, C
Code 128	Code 128 UPS
Code 128 pharmacy	ITF
Code 2/5 matrix	MSI
Code 2/5 interleaved	EAN 13 add-on 2
Code 2/5 5-line	EAN 13 add-on 5
Code 2/5 interleaved ratio 1:3	EAN 128
Code 2/5 matrix ratio 1:2,5	Postcode (guide and identity code)
Code 2/5 matrix ratio 1:3	UPC A
Code 39	UPC E
Code 39 extended	Code 93
Code 39 ratio 2,5:1	
Code 39 ratio 3:1	

All bar codes scalable in 30 different width and in the height.

2-dimensional bar codes

Data Matrix Code (code according to ECC200)
Maxi Code
PDF 417
Codablock F
Code 49
QR Matrix Code

GS1 Databar & CC bar codes

Reduced Space Symbology (GS1 Databar) und Composite Component (CC) bar codes:

GS1 Databar-14	UPC-A + CC-A/CC-B
GS1 Databar-14 truncated	UPC-E + CC-A/CC-B
GS1 Databar-14 stacked	EAN 13 + CC-A/CC-B
GS1 Databar-14 stacked omnidirectional	EAN 8 + CC-A/CC-B
GS1 Databar limited	UCC/EAN 128 + CC-A/CC-B
GS1 Databar expanded	UCC/EAN 128 + CC-C

Label material

Material type

Self-adhesive, card and synthetic materials, suitable for printing in thermal direct process and thermal transfer process. Use of roll material or leporello possible.

Material weight

- 64-04/05/06: max. 240 g/m^2
- 64-08: max. 160 g/m^2

Material width

Printer	Material width (mm)
64-04/05	25.4 – 154
64-04/05 Dispenser	25.4 – 140
64-06	30.2 – 185
64-06 Dispenser	30.2 – 172
64-08	100 – 254
64-08 Dispenser	100 – 241

[Tab. 5] Max. processable material widths.

Label length

- 64-0x: 5 to “max. print length”
- 64-0x Dispenser: 10 to “max. print length”

➠ The max. print length depends on the memory availability of the printer.

Label roll

- Max. outer-Ø: 210 mm
- Inner-Ø: 38/76/102 mm (1,5/3/4”)

Roll weight

Printer	Roll weight
64-04/05	4250 g
64-06	7200 g
64-08	5000 g

[Tab. 6] Max. admissible material roll weights.

Ribbon

Ribbon roll

- Max. outer-Ø :90 mm
- Inner core-Ø :25.4 mm (1")
- Winding direction:
  – *64-xx*: ink inside or outside
  – *64-xx Dispenser*: ink inside
- Roll width

Printer	Ribbon width [a]
64-04/05	30 -132 mm
64-06	30 -164 mm
64-08	40 -217 mm

[Tab. 7]Admissible ribbon width of the different printer types.

a) Counts also for 64-xx dispenser.

Connections, device data

Printer	Mains voltage	Mains frequency	Power consumption	Max. input current
64-04/05/06	115-240 V	50-60 Hz	250 W	3.2 A
64-08	100-240 V	50-60 Hz	450 W	3.2 A

[Tab. 8] Connection data for 64-xx printers.

Protection class I

Ambient conditions

Operating temp. +5 to +35 °C

Storage temp. -20 to +70 °C

Humidity 45 to 75 %, non-condensing

Noise 70 dB(A)

Protection category IP 21

Interfaces 64-0x Gen. 2

- Serial Interface (Com1)
  – RS 232 or RS 422/485; selection via parameter menu
  – Max. baud rate 115200
- Parallel Interface
  – Centronics
  – Bidirectional mode (nibble mode); conforms with IEEE 1284 B
- *Optional*: Ethernet interface 10/100 Base T with TCP/IP, LPD, RawIP printing, DHCP, HTTPD, FTPD, SNMP
- *Optional*: Universal Signal Interface (USI)
- *Optional*: Second serial interface (Com2)
  – RS 232
  – Max. baud rate 115200
- *Optional*: PS/2 keyboard connector for use in standalone mode and for putting in variable print data.

Pin assignment 🗋: read service manual, topic section „Electronics Gen. 2“

Interfaces 64-0x Gen. 3

- Serial Interface (Com1)
  – RS 232
  – Max. baud rate 115200
- *Optional*: Second serial interface (Com2)
  – RS 232 or RS 422/485
  – Selection via parameter menu
  – Max. baud rate 115200
- USB ports
  – USB 1.1
  – 2 USB-A host ports
  – 1 USB-B device port (full speed)
- Parallel Interface
  – Centronics
  – Bidirectional mode (nibble mode); conforms with IEEE 1284 B
- Ethernet interface 10/100 Base T with TCP/IP, LPD, RawIP printing, DHCP, HTTPD, FTPD, SNMP
- *Optional*: Universal Signal Interface (USI)

Pin assignment 🗋: read service manual, topic section „Electronics Gen. 3“

Electronics 64-0x Gen. 2

Processor	64 Bit IDT MIPS
RAM	16 MB (extendable to max. 80 MB)
ROM	2 MB
Plugin cards	1 slot for CompactFlash T1 up to max. 128 MB
Realtime clock	optional
Signal interface	(USI board) optional

Electronics 64-0x Gen. 3

Processor	32 Bit AMD MIPS
RAM	64 MB
ROM	4 MB
Plugin cards	• 1 slot for CompactFlash T1 (standard) • 1 slot for CompactFlash T1 (optional) • 1 slot for SD/MMC (standard, not yet supported)
Realtime clock	Standard
Signal interface	Optional: USI board or I/O board

Operation features

Operation panel	• (64-0x Gen. 2) – 4-key control panel – 32-figure illuminated LCD display • (64-0x Gen. 3) – 4-key control panel – graphical, 128 x 32 Dot LCD display, illuminated
Settings	Definition of parameters using menu or Easy Plug commands

Status messages / Test functions

Test printouts	Printouts for parameter settings, adding logo and font, line and bar code library
Test functions	Print tests with cut, test routines for memory and sensors, interface test
Error reports	Display of error reports on the display, continuation of print jobs without label loss
Warnings	Ribbon low
Dot check	Checks the printhead on defective dots – automatically or manually

Test certificates

TÜV GS

TÜV GS test certificate: Tested safety (according to EN 60950)

CE

The devices conform to CE-requirements and are marked with the CE label. The manufacturer declares that the device conforms with the relevant European guidelines.

EMC

The EMC test was made according to the following norms:

- EN 55022
- EN 55024
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-6-2

➠ The norm EN 55022 prescribes the following warning note to be included in the operation manual for devices of class A:

„Warning! This is class A equipment. This equipment may cause radio disturbances if it is used in a living area; in those cases can be demanded of the manufacturer to carry out appropriate measures.“

FCC

➠ FCC Regulations require the following wording for Class A devices:

„WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to local radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.“

IC

➠ IC (Industry Canada) requires the following wording for Class A devices:

„CANADIAN D.O.C. WARNING

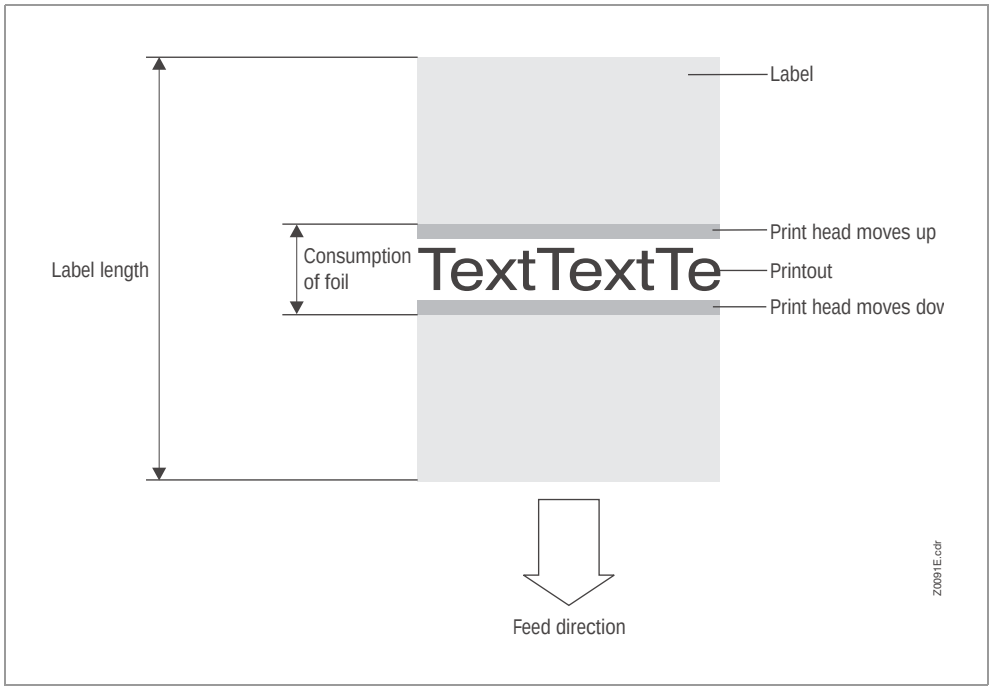
This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Réglement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.“

Appendix

Automatic ribbon economy

In regular print mode, ribbon is fed simultaneously with the label material. The automatic ribbon economy (= „ribbon saving“) stops the feeding of the ribbon if there are label areas of a certain size without imprinting. As a result, ribbon is saved [4].



[4] Ribbon (Foil) consumption when printing labels with a small imprinting area and activated automatic ribbon economy. Ribbon consumption is slightly higher than the length of the imprinted area.

The effect of ribbon saving depends on the print speed. The reason for this is the up and down movement of the printhead as well as the acceleration and slowing-down of the ribbon. Generally said: With a high print speed, less ribbon is saved as with a low print speed (Tab. 9).

Cutting or dispensing applications can additionally deteriorate the effect of ribbon saving.

Activating ribbon saving

Activate the automatic ribbon economy by selecting parameter SYSTEM PARAMETERS > Ribbon autoecon..

Set the minimum distance between two print areas from which on ribbon saving should be activated with parameter SYSTEM PARAMETERS > Ribbon eco. limit.

Setting parameters: see topic section „Info-printouts and Parameters“.

Only „Real 1:1“

The ribbon saving can only applied in Real 1:1 mode. All printjobs must therefore be defined using the #IMR Easy Plug command.

Easy-Plug commands : Easy Plug Manual, topic section „Description of Commands“.

Print speed		Minimum length of un-printed area in mm	Consumed ribbon per saving action in mm
mm/s	inch/s		
51	2	3.7	1.2
76	3	4.6	1.9
102	4	5.9	3.1
127	5	7.4	4.4
152	6	8.9	5.9
178	7	11.1	7.6
203	8	14.1	9.5
229	9	17.6	11.3
254	10	21.3	13.6
279)	11	25.3	15.9
205	12	30.0	18.5
330	13	34.5	21.2
356	14	39.9	24.2
381	15	45.6	27.3
406	16	51.3	30.5

[Tab. 9] The amount (length) of consumed ribbon per saving action (lifting and lowering of the printhead) increases with the print speed.

Important distances to the print line

Distance print line to	mm
Punch sensor (light transmission)	16.0
Punch sensor (reflex)	16.0
Punch sensor (Full-Size)	67.8
Dispensing edge (long)	39.8
Dispensing edge (short)	24.2

[Tab. 10] Important measures regarding the print line.